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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,459

07/13/2004

Kevin Ellwood

81100289

4458

28395 7590 10/30/2008
BROOKS KUSHMAN P.C./FTL
1000 TOWN CENTER
22ND FLOOR
SOUTHFIELD, MI 48075-1238

EXAMINER

WILLS, MONTQUE M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/710,459

Applicant(s)

ELLWOOD ET AL.

Examiner

Monique M. Wills

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
4a) Of the above claim(s) 17-24 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-16 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 13 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 7/18/08 & 8/3/04
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Inventor's Patent Application
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 17-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected, a method of controlling kinetic rates for internal reforming of fuel in solid oxide fuel cells there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on July 8, 2008.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

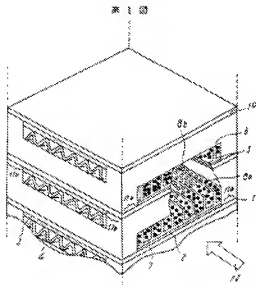
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2-3, 6-8, 13 & 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko JP 633310574.

Kaneko teaches a fuel cell comprising an anode, cathode and electrolyte layer. See Figure 1. The anode is adjacent to the electrolyte layer. A support structure (2)

defines a portion of anode flow channels having anode flow channel entrance for the introduction of fuel to the solid oxide fuel cell and an anode flow channel oxide. See Figure 1.



The catalyst 8a upstream of the fuel reforming catalyst are arranged on the upstream side of a fuel passage 7, and downstream fuel reforming catalyst 8b on its downstream side. The catalyst 8a have lower carbon deposition rate that the catalyst 8b. See the Abstract. The difference in carbon deposition rate yields a difference in catalytic concentration that is available to promote electrochemical reactions. The first concentration 8a is at a first position and the second concentration 8b is at a second position located down stream from the flow channels in the fuel cell stack. See Figure 2. The anode, cathode and electrolyte layer are arranged in substantially parallel sheets. See Figure 1. The stack comprises more than one anode flow channel. See Figure 2. With respect to the catalyst concentration monotonically increasing with distance from the anode flow channel and increasing linearly between the first and

second position, the limitations are satisfied as the catalytic concentration gradually increases from the inlet to the outlet of the fuel cell. See Figs. 1 & 2. Therefore, the instant claims are anticipated by Kaneko.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5, 9-10 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko JP 633310574 .

Kaneko teaches a fuel cell as described in the rejection recited hereinabove.

The reference does not expressly disclose catalyst concentration increases stepwise between first and second positions, the catalyst amount of 1% to 50% and concentrically electrode arrangement.

However, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the instant catalytic concentration in the cell of Kaneko, as it is well within the artisan skill to vary the catalyst concentration across the fuel cell channels through routine experimentation.

With respect to the catalyst amount, an amount of 1 to 50% would be obvious to employ in the fuel cell of Kaneko, since it has been held that discovering an optimum

value of a result effective variable involves only routine skill in the art. in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko JP 633310574 in view of Sridhar et al. U.S. Pub. 2005/0074650.

Kaneko teaches a fuel cell as described in the rejection recited hereinabove.

However, the reference does not expressly disclose a nickel catalyst.

Sridhar teaches that it is well known in the art to employ nickel catalyst in solid oxide fuel cells (par 208).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the nickel catalyst of Sridhar, in the fuel cell of Kaneko, because the selection of known materials for the same intended purpose is prima facie obvious. See In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)

(selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Goebel et al.U.S. Pub. 2005/005881 teaches a catalyst layer edge protection for enhanced MEA durability in PEM fuel cells.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Monique M Wills/
Examiner, Art Unit 1795

/Stephen J. Kalafut/
Primary Examiner, Art Unit 1795